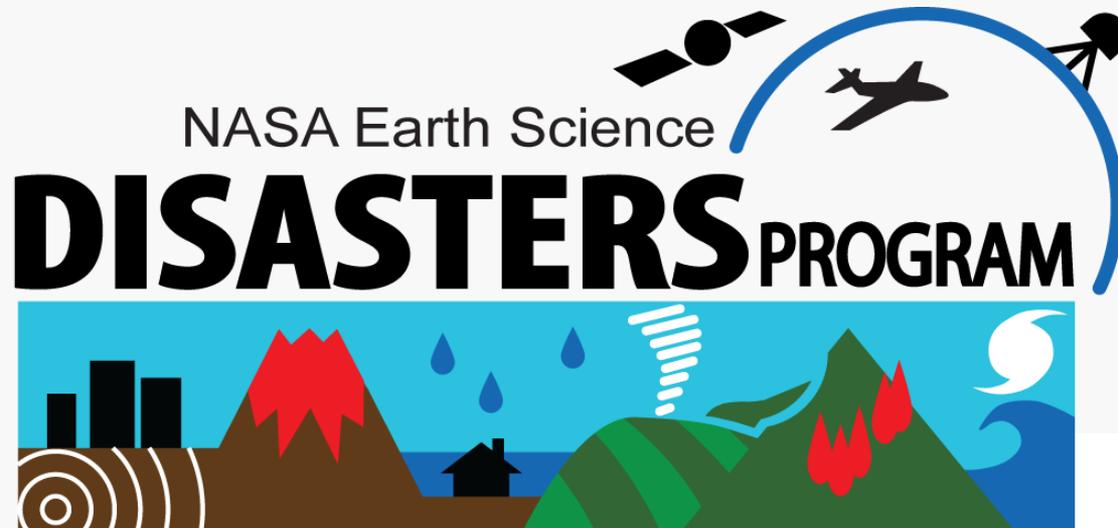


# Disasters Update

May 10<sup>th</sup>, 2018

GSFC Disaster Coordinators

- [Miguel.O.Roman@nasa.gov](mailto:Miguel.O.Roman@nasa.gov)
- [Dalia.B.Kirschbaum@nasa.gov](mailto:Dalia.B.Kirschbaum@nasa.gov)





# NASA Applied Sciences: Latest Activities

## ROSES 2018 A.37 Disaster Risk Reduction and Response



The NASA Earth Science Division (ESD), Applied Sciences Program solicits proposals for user-centric applications research enabling risk-informed decisions and actions.



CANCELLERÍA



- *2<sup>nd</sup> Ambassador Dialogue on DRR Across the Americas: Regional opportunities for harnessing Earth science to reduce economic impacts*
- *How can leadership advance the integration and use of science and technology, particularly EO data, in their DRR policies, plans, and approaches?*



**GFDRR**  
Global Facility for Disaster Reduction and Recovery



**VI** **Plataforma Regional  
para la Reducción del Riesgo  
de Desastres en las Américas**

20 - 22 de Junio 2018 - Cartagena, Colombia



**GOBIERNO DE COLOMBIA**





## NASA Applied Sciences Perspective

- ***Near-real time Analysis Ready Data (NRT-ARD)***



*Data that has been processed to a minimum set of requirements and organized into a form that allows for immediate analysis with minimum additional user effort and interoperability both through time and with other datasets.*

- **More than just new products what is needed are useable products (slides 4-7).**
- **Enhance and complement NASA's Disasters Mapping portal (slide 8).**
- **ARD + NRT-ARD that facilitate creation of knowledge products and decision support tools about risk (slides 9-10).**



# Active Disaster Responses



NASA Applied Sciences Program | [www.nasa.gov](http://www.nasa.gov)

Search



## NASA Earth Science DISASTERS PROGRAM



ORGANIZATION

DISASTERS

RESILIENCE

RESOURCES

May 8, 2018

### Sulfur Dioxide Leaks from Kilauea

Data from the the Ozone Mapping Profiler Suite (OMPS) sensor on the Suomi NPP satellite, acquired April 30 - May 5, 2018 Kilauea has been erupting continuously since 1983, but in late April and early May...

[Read More](#)



Sulfur Dioxide (Dobson units)



Please join NASA at the GFDRR / World Bank Understanding Risk Forum on May 14th - 18th, 2018 in Mexico City, Mexico. NASA will be hosting a Side Event "From Space to Finance", a Session on "EO Data for Communication", as well as supporting the Water Youth Network's Pressure Cooker Event. [Register now.](#)

### Recent Responses

[Kilauea, Hawaii Eruption 2018](#)

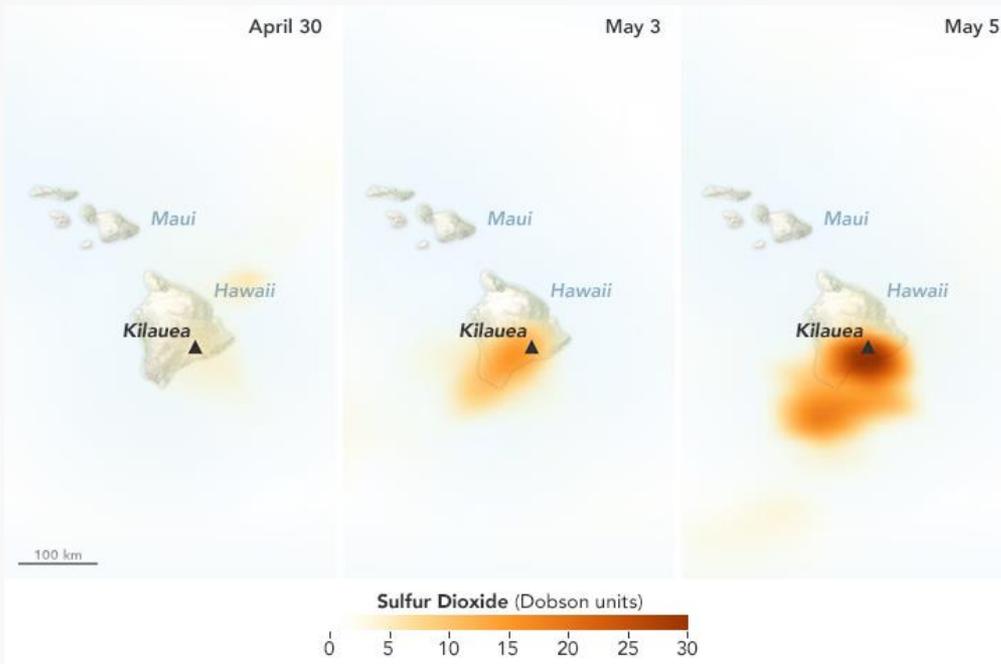
[Aoba \(Ambae\) Volcano Eruption](#)

## About the NASA Disasters Program

The Disasters Applications area promotes the use of Earth observations to improve prediction of, preparation for, response to, and recovery from natural and technological disasters.



# Sulfur Dioxide Leaks from Kilauea



Data from the Ozone Mapping Profiler Suite (OMPS) sensor on the Suomi NPP satellite, acquired April 30 - May 5, 2018



As of May 7, 2018, slow-moving lava flows had consumed 35 homes.

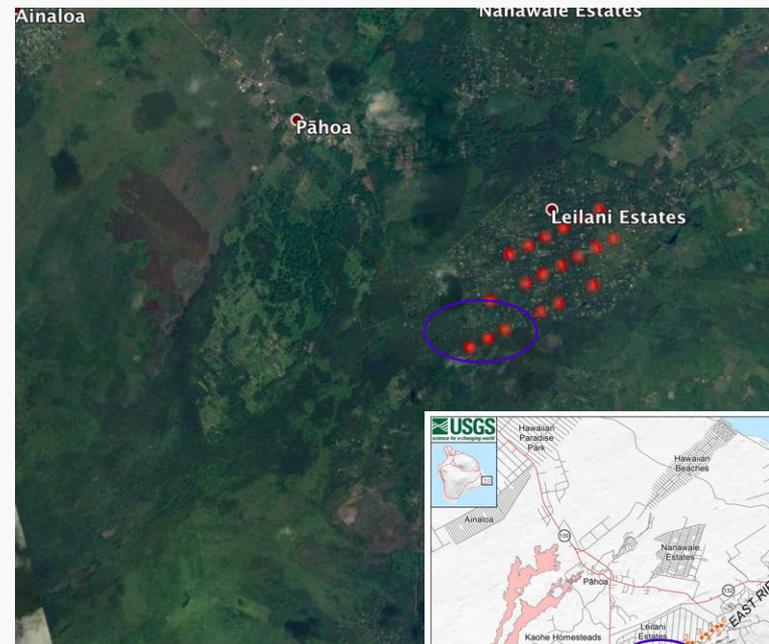


# VIIRS Thermal anomaly detection of volcanic event in Hawaii

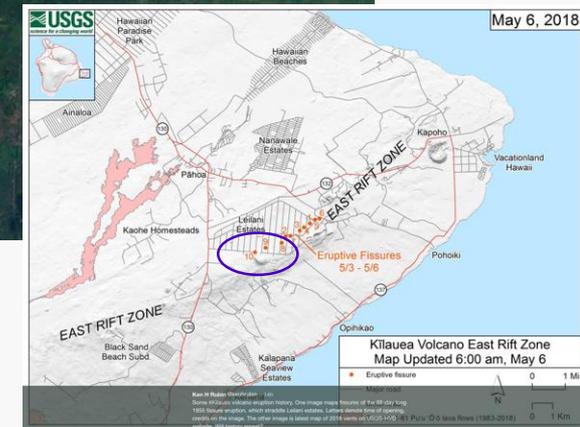
May,6<sup>th</sup> 1:40 am (Night)



May,6<sup>th</sup> 12:55 pm (day)



Extension of thermal anomalies South and West between nighttime and daytime observations consistent with USGS observations of new fissures (8-9-10)

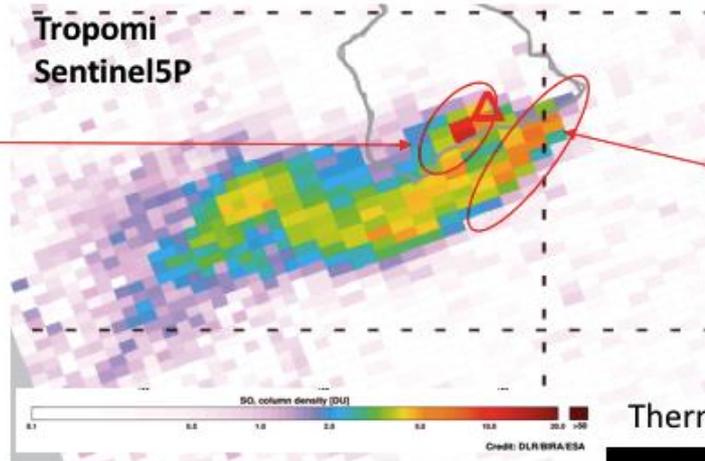




# Satellite Views of SO<sub>2</sub> and Lava Thermal Anomalies from Volcanic Fissures in Hawaii

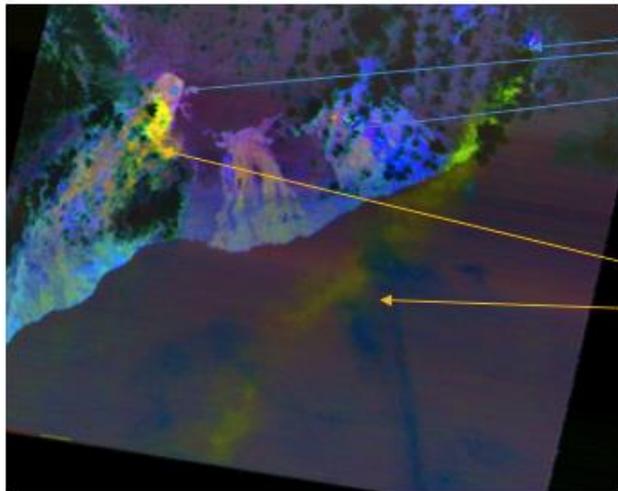
## SO<sub>2</sub> plumes and Thermal Anomalies from Hawaii Eruption; May, 6<sup>th</sup> 2018

SO<sub>2</sub> plume from Kilauea



Second plume is visible through Tropomi showing SO<sub>2</sub> emissions From Fissures in Leilani areas.

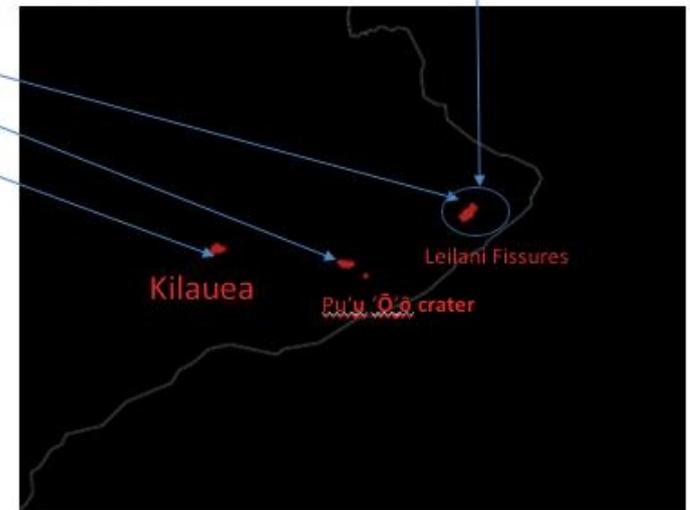
ASTER/Terra Thermal Infrared



Lava Hot spots seen by ASTER and VIIRS

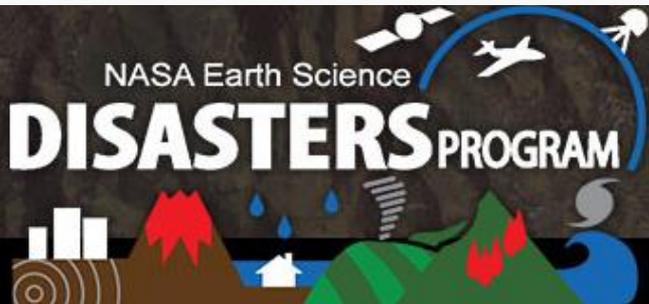
So<sub>2</sub> plumes from ASTER TIR in Yellow

Thermal Anomalies InFraRed/VIIRS/NPP



The relative high resolution from ASTER and VIIRS (300-400m) are really unique to locate the new fissures which occurred in Leilani areas on May 3rd and May 4th and forced the evacuation of more than 1000 people.

# Disaster Portal



NASA Disasters Mapping Portal **BETA**

## Featured Maps and Apps



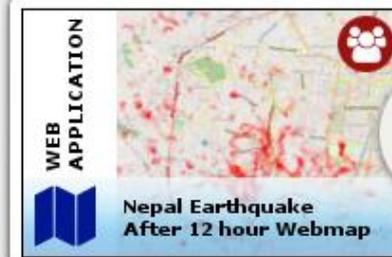
**Kilauea Volcano Eruption, Hawaii**



**Aoba (Ambae) Volcano Eruption, Vanuatu**



**Kauai, Hawaii Flooding; April 2018**



**Nepal Earthquake 4-25-2015 [USAR Exercise Map; 12**

## Legend

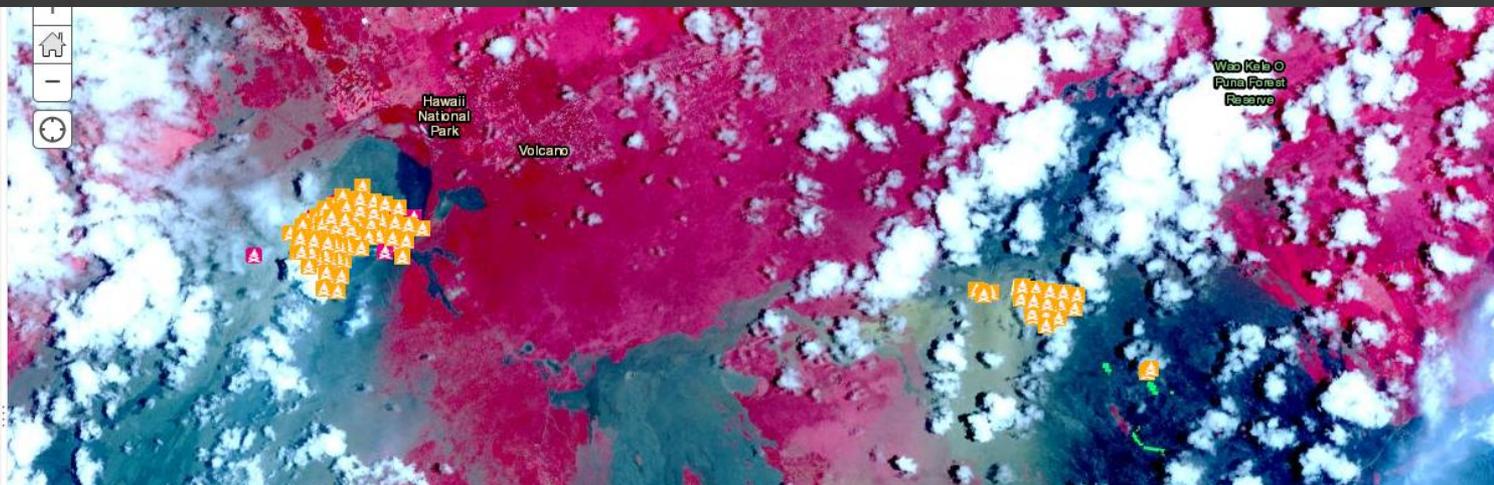
FIRMS Active Fire: previous 7 days, Update every 3 hours

FIRMS Active Fire Pts: VIIRS VNP14 Global 7 day period

FIRMS Active Fire Pts: MODIS C6 Global 7 day period

ASTER False Color and Hotspot Detection: 20180506

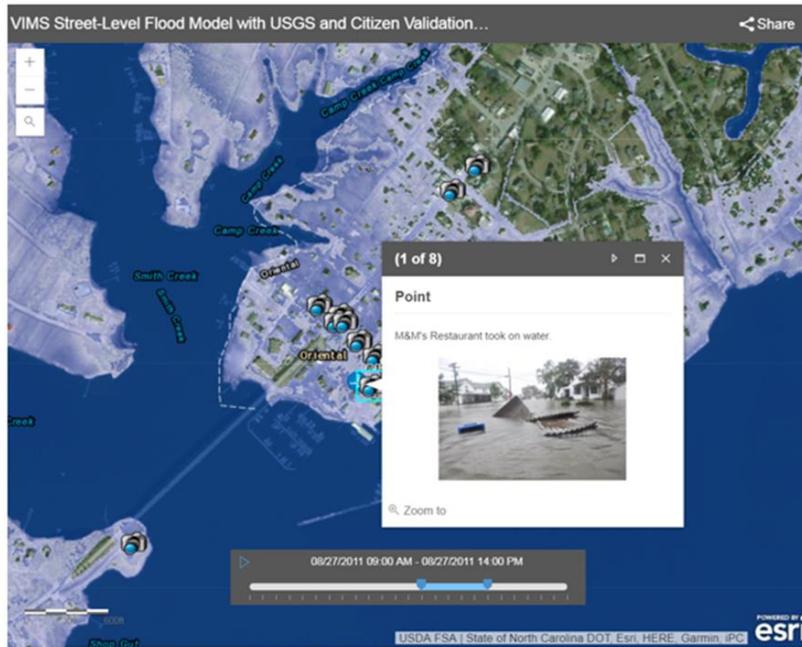
- Red: Band\_1
- Green: Band\_2
- Blue: Band\_3





# CAIR - Communities and Areas at Intensive Risk

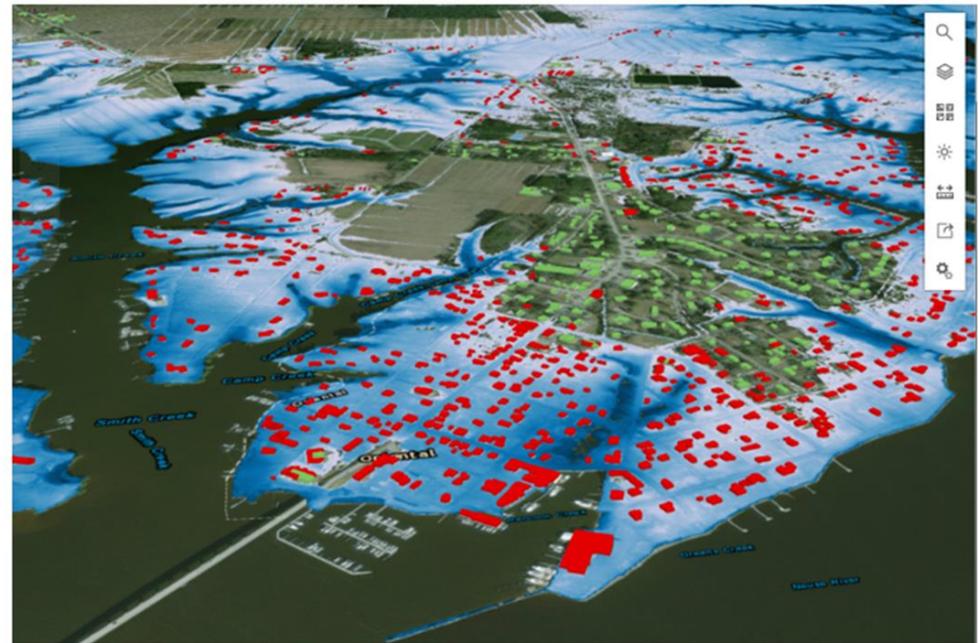
## Mid-Atlantic CAIR demonstration



### Oriental, NC – Hurricane Irene (27-29 Aug 2011)

Blue represents predicted flooding based on VIMS Street level flood modeling

Photos are actual flooding following Hurricane Irene



### Oriental, NC – Hurricane Irene (27-29 Aug 2011)

Blue represents predicted flooding based on VIMS Street level flood modeling

Red indicates homes where high water exceeds the first floor elevation (FFE) – home is flooded

Green indicates water has not exceeded FFE

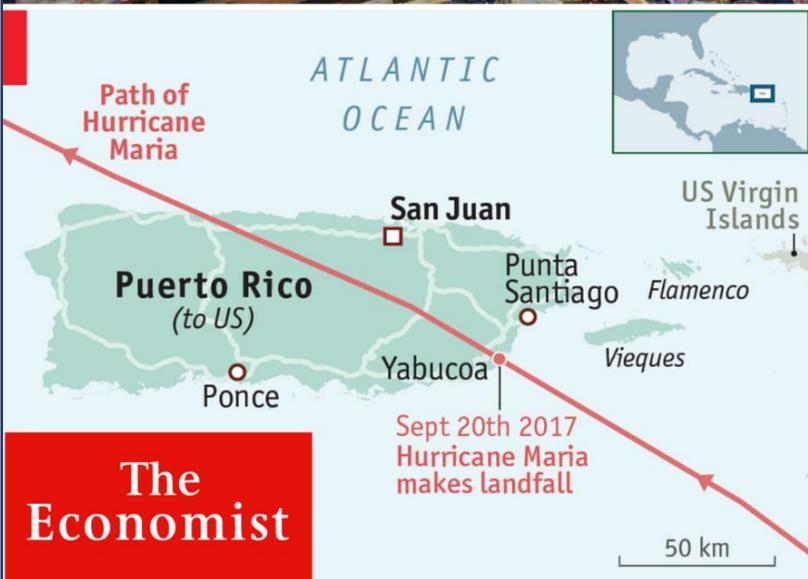
**Hurricane simulations (e.g., Hurricane Irene hindcast with support from NASA-SPoRT) can produce flood predictions a provide a picture of vulnerable areas.**

# HQ Monthly Status Reports (MSR)

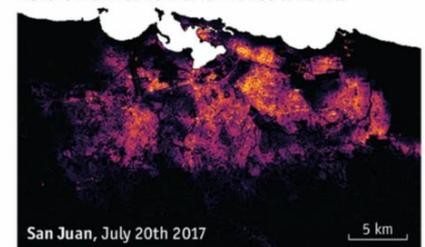


<https://bit.ly/2IXJmfs>

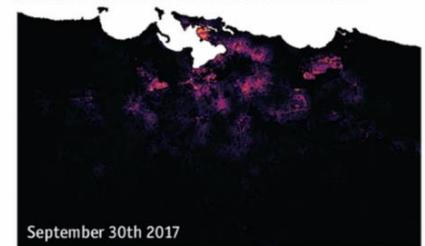
**Briefing Puerto Rico** The Economist April 14th 2018



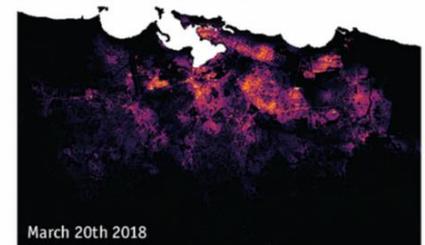
**Illuminating**  
Night-light intensity in San Juan  
Before Hurricane Maria makes landfall



Immediate aftermath of Hurricane Maria



Six months after Hurricane Maria



Source: Suomi NPP VIIRS data from Miguel Román, NASA Disasters Programme  
Economist.com

The April 2018 issue of The Economist featured data and images from NASA's Black Marble Science Team in an article about the recovery of Puerto Rico's energy sector six months after Hurricane Maria devastated the island.